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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/359,838	07/23/1999	STANLEY E. KAY	PD-990149	3345

20991 7590 10/24/2002

HUGHES ELECTRONICS CORPORATION
PATENT DOCKET ADMINISTRATION
BLDG 001 M/S A109
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EL SEGUNDO, CA 902450956

EXAMINER

ROBUSTELLI, MICHAEL E

ART UNIT PAPER NUMBER

2697

DATE MAILED: 10/24/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

11

Office Action Summary

Application No.

09/359,838

Applicant(s)

KAY ET AL.

Examiner

Michael E Robustelli

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _____ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on _____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-45 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-45 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 July 1999 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because of the following:
 - i. Reference character "606" has been used to designate both guard and parity segments of the traffic burst in figure 6
 - ii. Reference character "1116" has been used to designate both the symbol-to-byte converter and byte-to-symbol of the modulator and demodulator of figure 11. See page 53, lines 26 and 30.
 - iii. Reference character "930" has been used to designate both the bus controller, see figure 9, and the "WAN line," see page 64 line 37.
 - iv. Reference character "1810" has been used to designate both CB_RX_Data, in figure 18, and the processor bus, in figure 21
2. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.
3. The drawings are objected to under 37 CFR 1.83(a) because of the following:

- i. Fail to show reference number 3004 (ATM formatter) as described in the specification for figure 30.
 - ii. Fail to show reference number 2312 (Utopia bus) as described in the specification for figure 30.
 - iii. The DS3 transparent SSI module mentioned on page 18, lines 22-23 must be shown
 - iv. Fail to show other headers (reference number 2810) as described in the specification on page 119, line 16.
 - v. Fail to show timing multiplexer 1952 as described in the specification, on page 106, line 34.
 - vi. Do not include the following reference sign(s) mentioned in the description:
Figure 21, reference number 2136.
 - vii. Fail to show figure 12B as described in the specification, page 78 line 18.
4. The drawings are objected to under 37 CFR 1.83(a) because they Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

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5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 5 and 8^a are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Referring to claim 5, the claim reads "The frame format of claim 4 wherein a duration of respective ones... are multiples of each other." It is unclear which are the multiples of each other.

Referring to claim 8, the claim is rejected for containing the same indefinite language as in claim 5.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this

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application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

8. Claims 1, 10, 17 and 24-25 is rejected under 35 U.S.C. 102(e) as being anticipated by Mousley (US Patent 6,407,993).

Referring to claim 1, Mousley discloses a frame format including an overhead section followed by a data section (See page 3, lines 43-45). Both the overhead and data sections contain numerous time slots (See pages 3, lines 38-45, and 6, lines 2-4). Also indicated are multiple data bursts, each contained in the aforementioned data time slots. Mousley also proposes that each data burst may be modulated with one of many modulation techniques on a burst-by-burst basis (See page 4, lines 6-11).

Referring to claim 10, Mousley teaches us the uses of QPSK, 16-QAM and 64-QAM (See pages 3, table 1, and 4, lines 15-16).

Referring to claim 17, Mousley teaches us the variation in length of data (or traffic) bursts (See Figure 2).

Referring to claim 24, Mousley presents the prior art of frame format, which includes a plurality of time slots in the data section (See page 3, lines 38-45). These time slots contain data bursts that employ multiple modes of modulation (See page 4, lines 6-11).

Referring to claim 25, Mousley anticipates the uses of QPSK, 16-QAM and 64-QAM (See pages 3, table 1, and 4, lines 15-16).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 2-3, 18 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mouldsley (US Patent 6,407,993) in view of Brickman (US Patent 4,328,543).

Referring to claim 18, Mouldsley discloses a frame format including an overhead section followed by a data section (See page 3, lines 43-45). Both the overhead and data sections contain numerous time slots (See pages 3, lines 38-45, and 6, lines 2-4). Also indicated are multiple data bursts, each contained in the aforementioned data time slots. Mouldsley also proposes that each data burst may be modulated with one of many modulation techniques on a burst-by-burst basis (See page 4, lines 6-11).

Mouldsley fails to disclose the method for group multiple frames together in order to create a super frame air interface.

Brickman introduces the superframe format that divides into 4 frame groups, each of which further divides into 5 frames (See page 7, lines 4-5 and 12-13).

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This method is commonly used to organize transmission data in frame formats. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use Brickman's teaching in Mousley's system. The motivation for doing this would be to increase transmission efficiency by providing organizational format.

Referring to claims 2-3 and 26, Mousley discloses a frame format including an overhead section followed by a data section (See page 3, lines 43-45). Both the overhead and data sections contain numerous time slots (See pages 3, lines 38-45, and 6, lines 2-4). Also indicated are multiple data bursts, each contained in the aforementioned data time slots. Mousley also proposes that each data burst may be modulated with one of many modulation techniques on a burst-by-burst basis (See page 4, lines 6-11). Mousley anticipates the use of QPSK as modulation option (See pages 3, table 1, and 4, lines 15-16). Mousley suggests that the header can contain multiple forms of modulation, this indicates that it is up to the user to determine whether or not to use only one form of modulation in the overhead.

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to include only one mode of modulation for the overhead portion. An overhead using a single modulation is commonly used so that only one method of demodulation need be used to obtain the entire header information. The motivation for doing this would be simplicity in the circuit design of the receiver.

11. Claims 4-7 and 27-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mouldsley (US Patent 6,407,993) in view of Kolze (US Patent 6,285,681)

Referring to claims 4 and 6-7, Mouldsley discloses a frame format including an overhead section followed by a data section (See page 3, lines 43-45). Both the overhead and data sections contain numerous time slots (See pages 3, lines 38-45, and 6, lines 2-4). Also indicated are multiple data bursts, each contained in the aforementioned data time slots. Mouldsley also proposes that each data burst may be modulated with one of many modulation techniques on a burst-by-burst basis (See page 4, lines 6-11).

Mouldsley fails to foresee the method of including different types of bursts.

Kolze anticipates the use of single and quad bursts types, such that single bursts carry 1 ATM cell/burst and quad bursts carry 4 ATM cells/burst (See page 8, lines 20-22)

Referring to claims 5 and 7, Kolze also teaches that the duration of a quad burst (4 ATM cells/burst), in 16-QAM modulation, is 3 times as long as the duration of a single burst (1 ATM cell/burst). (See table 4, "total burst duration").

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to utilize single and quad burst types

One of ordinary skill in the art would have been motivated to do this because quad bursts transmit large numbers of cells with greater throughput (See

table 1, overhead efficiency), while the single bursts allow for the transmission of lesser number of cells.

12. Claims 8-9, 11-13, 29-30 and 38-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mousley (US Patent 6,407,993) in view Jasper (US Patent 5,533,004).

Referring to claims 8-9, 11-13, 29-30 and 38-39, Mousley discloses a frame format including an overhead section followed by a data section (See page 3, lines 43-45). Both the overhead and data sections contain numerous time slots (See pages 3, lines 38-45, and 6, lines 2-4). Also indicated are multiple data bursts, each contained in the aforementioned data time slots. Mousley also proposes that each data burst may be modulated with one of many modulation techniques on a burst-by-burst basis (See page 4, lines 6-11).

Regarding claims 8-9, 11-13 and 29-30, Mousley fails to include a bursts using a plurality of modulations, wherein each of said bursts using a particular modulation technique is a duration that is a multiple of a burst using another modulation technique, and furthermore, that the multiple is an integer. Referring to claims 38-39, Mousley fails to include reference towards each differently modulated data burst comprising a different number of time slots.

Jasper has disclosed the design in which a data burst modulated with a high order modulation technique occupies a block with a particular duration. Additionally the integer multiples of that high-order modulation block duration

coincide with the duration of lower-order modulation's block (See page 5, 25-47, and figure 4 and 5).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to organize bursts of different modulation orders such that their lengths are multiples of the one with the shortest length (highest ordered).

One of ordinary skill in the art would have been motivated to do this because this would allow for a more efficient scheme for assembling a group of multi-modulation bursts onto the same airframe using TDMA.

13. Claims 14, 15 and 19-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mouldsley (US Patent 6,407,993) in view of Dove (US Patent 6,310,891).

Referring to claim 14, 15, and 19-23, Mouldsley discloses a frame format including an overhead section followed by a data section (See page 3, lines 43-45). Both the overhead and data sections contain numerous time slots (See pages 3, lines 38-45, and 6, lines 2-4). Also indicated are multiple data bursts, each contained in the aforementioned data time slots. Mouldsley also proposes that each data burst may be modulated with one of many modulation techniques on a burst-by-burst basis (See page 4, lines 6-11).

Mouldsley fails to provide a method for carrying both synchronous and asynchronous data cells through the same frame.

Dove teaches the method of multiple modes of transport within a frame. Furthermore, Dove suggests that these modes comprise synchronous (TDM) and asynchronous transport modes (ATM) (See page 2, lines 32-35).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to utilize a frame format, which could include both TDM and ATM modes.

One of ordinary skill in the art would have been motivated to do this because this would enable transmission of a range of multimedia services including telephone, video and computer data (See Dove page 1, lines 26-29).

14. Claims 31-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mousley (US Patent 6,407,993) in view of Dove (US Patent 6,310,891).

Referring to claim 31-37, Mousley presents the prior art of frame format, which includes a plurality of time slots in the data section (See page 3, lines 38-45). These time slots contain data bursts that employ multiple modes of modulation (See page 4, lines 6-11). Mousley also anticipates the variation in length of data (or traffic) bursts (See Figure 2).

Mousley fails to provide a method for carrying various forms of transport mode signals through the same frame.

Dove discloses the method of multiple modes of transport within a frame. Furthermore, Dove suggests that these modes comprise synchronous (TDM) and asynchronous transport modes (ATM) (See page 2, lines 32-35).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to utilize a frame format, which could include both TDM and ATM modes.

One of ordinary skill in the art would have been motivated to do this because this would enable transmission of a range of multimedia services including telephone, video and computer data (See Dove page 1, lines 26-29).

15. Claim 40 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nguyen (US Patent 5,025,455) in view of Brickman (US Patent 4,328,543).

Nguyen introduces the technique of a preamble utilizing two unique words. This is done to accomplish synchronization (See pages 4, lines 58-60).

Nguyen fails to propose the use of a data/spare section between the first and second unique word, a guard and a ramp at the beginning of the overhead or parity bit at the end of the data section.

Brickman provides the prior art needed to accomplish said data/spare section. In this case a guard space (dummy or spare) is inserted between a number of time slots in the control field (overhead)(See figure 2).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to include a data/spare section between two unique words so that frame timing can be recovered.

The motivation for using this guard field of set length would be to accommodate the two unique word's synchronization purposes, while simultaneously avoiding overlapping transmission.

16. Claims 41-42 and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nguyen (US Patent 5,025,455) in view of Brickman (US Patent 4,328,543) as applied to claim above, and further in view of Kolze (US Patent 6,285,681).

Referring to claims 41-42 and 45, Nguyen in view of Brickman, as discussed in the rejection of claim 40 above, differs from claims 41-42 and 45 in that Nguyen in view of Brickman fails to discuss including a guard, ramp or parity bits.

However, Kolze introduces a frame format that begins with a guard followed by a ramp. Additionally, Kolze includes a parity that follows the data section (See figures 2 and 3).

These header fields (guard, parity and ramp) are commonly known in the art. The guard is often used at the beginning of the preamble to prevent the overlapping of successive frames. The parity is useful in recognizing and correcting codeword errors. The ramp is a field sometimes used to take into account the time needed to power up a transmitter to transmission power.

At the time the invention was made, the use of these three preamble fields would have been obvious to a person of ordinary skill in the art.

The motivation for using the guard, ramp and parity fields are to gain the advantages they offer listed above, which increase overall transmission efficiency.

17. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mouldsley (US Patent 6,407,993) in view of Tayebi et. Al (US Patent 6,373,827).

Mouldsley discloses a frame format including an overhead section followed by a data section (See page 3, lines 43-45). Both the overhead and data sections contain numerous time slots (See pages 3, lines 38-45, and 6, lines 2-4). Also indicated are multiple data bursts, each contained in the aforementioned data time slots. Mouldsley also proposes that each data burst may be modulated with one of many modulation techniques on a burst-by-burst basis (See page 4, lines 6-11).

Mouldsley fails to, however, anticipate the method of including a data/spare section between the overhead and traffic section.

Tayebi discloses a data/spare section which he include at the end of the header, just before the data section (See page 10, lines 6-11, also see figure 5b.).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to include a data/spare section between the overhead and traffic section.

One of ordinary skill in the art would have been motivated to do this because a data/spare positioned between the overhead and traffic section could be use to carry data or act as a guard space.

18. Claims 43 and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nguyen (US Patent 5,025,455) in view of Brickman (US Patent 4,328,543) as applied to claim above, and further in view of Beidas (US Patent 6,363,131).

Referring to claims 43-44, Nguyen in view of Brickman, as discussed in the rejection of claim 40 above, differs from claims 43 and 44 in that Nguyen in view of Brickman fails to discuss the lengths of the first and/or second unique words being less than 16 symbols.

Beidas teaches of a frame format containing numerous unique words, whose lengths are 4 bits (See page 6, lines 3-4).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use a unique word of less than 16 bits.

One of ordinary skill in the art would have been motivated to do this because shorter unique words would reduce the size of the overhead, thereby increasing throughput.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael E Robustelli whose telephone number is 703-305-8326. The examiner can normally be reached on Monday- Friday, 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy D Vu can be reached on (703)-308-6602. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9314 for regular communications and 703-872-9314 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4750.

R

October 15, 2002

Michael E. Robustelli

Ricky Ngo

**RICKY NGO
PRIMARY EXAMINER**